

Abstract

Method for producing semiconductor chips

A method for producing a plurality of semiconductor chips, particularly radiation-emitting semiconductor chips, each having at least one epitaxially produced functional semiconductor layer stack, comprising the following method steps:

- preparing a growth substrate wafer (1) substantially comprised of semiconductor material from a semiconductor material system that is with respect to lattice parameters the same as or similar to that on which a semiconductor layer sequence for the functional semiconductor layer stack is based,
- forming in the growth substrate wafer (1) a separation zone (4) disposed parallel to a main face (100) of the growth substrate wafer (1),
- joining the growth substrate wafer (1) to an auxiliary carrier wafer (2),
- detaching along the separation zone (4) a portion (11) of the growth substrate wafer (1) that faces away from the auxiliary carrier wafer (2) as viewed from the separation zone (4),
- forming on the portion (12) of the growth substrate wafer remaining on the auxiliary carrier wafer (2) a growth surface for subsequent epitaxial growth of a semiconductor layer sequence,
- epitaxially growing the semiconductor layer sequence (5) on the growth surface,
- applying a chip substrate wafer to the semiconductor layer sequence,
- detaching the auxiliary carrier wafer (2), and
- singulating the composite composed of the semiconductor layer sequence and the chip substrate wafer (7) into mutually separate semiconductor chips.

Fig. 1c